Siemens Motion

Audiologist and Hearing Care Professional Information

www.siemens.com/hearing

SIEMENS

Life is for living, as the saying goes. For immersing yourself in your hobbies. For relaxing with your favorite music. Or simply spending time with family and friends. Those are the reasons why Siemens developed Motion™.

Packed with the latest technology, easy and comfortable to wear, and fully automatic for hassle-free operation, Motion is a perfect re ection of Siemens commitment to make every hearing solution as individual as the person who wears it.

Easy does it.

Hassle-free hearing. That's why Siemens created Motion. Designed for wearers with moderate through severe hearing loss, Motion offers different housing types and performance levels to meet the diverse needs of wearers. Motion is fully automatic, so even in complex listening environments, there's no need to change programs or adjust volume settings. And all BTE models are rechargeable, so wearers don't have to worry about changing batteries either.

Simply rechargeable.

All Motion BTEs are rechargeable – just perfect for wearers who don't want the hassle of changing batteries. Wearers can simply place both instruments in the stylish, easy-to-use charger. After just five hours, the instruments are ready to go all day and evening. For maximum exibility, these instruments also work with standard zinc air batteries.

Multiple choice.

Motion offers a choice of BTE and custom configurations to fit varying individual needs.

BTE Products

Features	Motion S	Motion M	Motion M VC	Motion P
Maximum Output	123 dB SPL	123 dB SPL	123 dB SPL	130 dB SPL
Maximum Gain	55 dB	55 dB	55 dB	70 dB
Battery	13	13	13	13
Volume Control			✓	✓
Push Button	✓	✓		✓
Autophone		✓	✓	✓
T-Coil	✓	✓	✓	✓
Battery Door Lock	✓	✓	✓	✓
Children's Ear Hook	✓	✓	✓	✓

Custom Products

Features	Motion IT/ITE	Motion CT/ITC
Matrix Values	118/50, 123/55, 123/60	113/40,118/45, 118/50
Battery Type	13	312
Volume Control	Optional	Optional
Push Button	Optional	Optional
Autophone (Switchless T-Coil)	Optional	Optional
T-Coil	Optional	Optional
Directional Microphone	✓	Optional
e2e wireless 2.0*	✓	✓

Features	Motion CIC
Matrix Values	113/40, 113/47
Battery Type	10A
Volume Control	
Push Button	Optional
Autophone (Switchless T-Coil)	
T-Coil	
Directional Microphone	
e2e wireless 2.0*	✓

*available in all models except 100

Going through the motions.

	Features	Description
Natural sound	AGC-I Compression system (channels)	Multichannel dynamic range compression
	AGC-O Output limitation (channels/programming handles)	Multichannel output limiting
	e2e wireless™ 2.0	Synchronizes both instruments and provides better localization
	TruEar™	Improves localization of sound from front to back
	SoundBrilliance™	Enhances the perception of higher frequencies for a richer hearing experience
	SoundBalance	Treble control with Tek Connect
Sound comfort	Speech and Noise Management	Reduces annoying noise and enhances speech signals
	SoundSmoothing™	Softens unwanted transient noises
	Directional Microphone	Automatic and multichannel-adaptive
	FeedbackBlocker™	With Acoustic Fingerprint Technology (AFT) eliminates feedback whistling without affecting the quality of speech
	Adaptive Melody Beeps	Ensures that the acoustical signals are always audible for the wearer
	eWindscreen™	Suppresses wind noise in windy conditions
	Microphone Noise reduction	Ensures that microphone noise is not audible in quiet environments
Learning	SoundLearning™	Learns preferred volume, compression, and frequency shape
	DataLearning™	Automatically learns the wearer's overall volume preferences and logos relevant data
	DataLogging	Collects information on hearing preferences
Remotes	TEK	Allows wearers to connect wirelessly to audio devices and Bluetooth-enabled phones
	ProPocket™	Discreet pocket-size remote control for volume and program changes with integrated on/off function
	ePen™	Discreet pen-shaped remote control for volume and program changes with integrated on/off function
Fitting	ConnexxLink™*	Wireless programming of hearing instruments

*available at the end of 2009

Motion 700	Motion 500	Motion 300	Motion 100
16	12	8	6
16/4	12/4	8/4	6/4
✓	✓	✓	
✓			
✓			
✓	✓	✓	
off + 7 steps	off + 5 steps	off + 3 steps	off + 3 steps
off + 3 steps	off + 3 steps	on/off	
Automatic, multichannel-adaptive	Automatic, multichannel-adaptive	Automatic, adaptive	Automatic
✓	✓	✓	✓
✓	✓	✓	✓
on/off	on/off	on/off	on/off
✓	✓	✓	✓
✓			
✓	✓		
✓	✓	✓	✓
✓	✓	✓	
✓	✓	✓	
✓	✓	✓	
✓	✓	✓	

What keeps Motion in motion.

Motion is designed to make hearing easy for wearers. It's packed with all the latest technology to provide the utmost in sound quality and clarity.

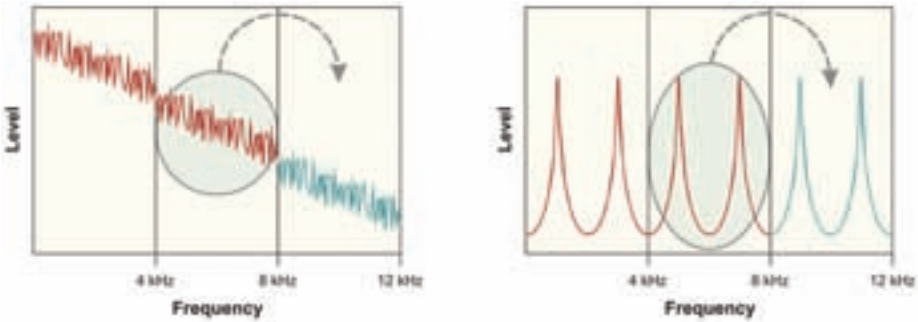
Natural Sound

The goal of every Siemens hearing instrument is to provide a hearing experience that's as natural as possible. Motion is equipped with several Siemens patented, industry-best features to provide a natural hearing experience and help counter the effects of hearing loss. These features work together, helping the wearer experience sounds in the same way as individuals with normal hearing.

Loudness and Recognition

Some hearing instrument wearers may be bothered by sounds that are uncomfortably loud. But Motion's **AGC-I** and the new multichannel **AGC-O** systems work together to help balance wearers' perceptions of soft, average, and loud sounds and ensure that sounds are audible and recognizable without being too loud. For optimal exibility, these characteristics are fully adjustable in up to 16 channels.

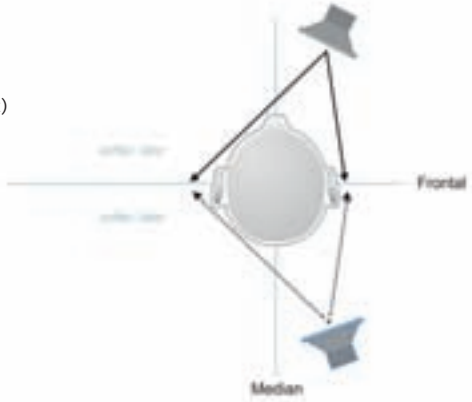
SoundBrilliance in Motion 700 adds richness and fullness to the hearing instrument's sound by providing the perception of acoustic stimulation of up to 12 kHz. SoundBrilliance analyzes the hearing instrument's input signals and adds high frequencies whenever appropriate in order to provide full sound quality. This feature is particularly useful where sound signals are wirelessly transmitted. Bluetooth® transmission, for example, is bandlimited to 7.5 kHz, but SoundBrilliance adds high frequencies to the original signals.



Principle of bandwidth extension with SoundBrilliance. Bandlimited signal in red, extended signal in green.

Left-right discrimination
binaural cues (ILD > 2 kHz, ITD < 1.5 kHz)

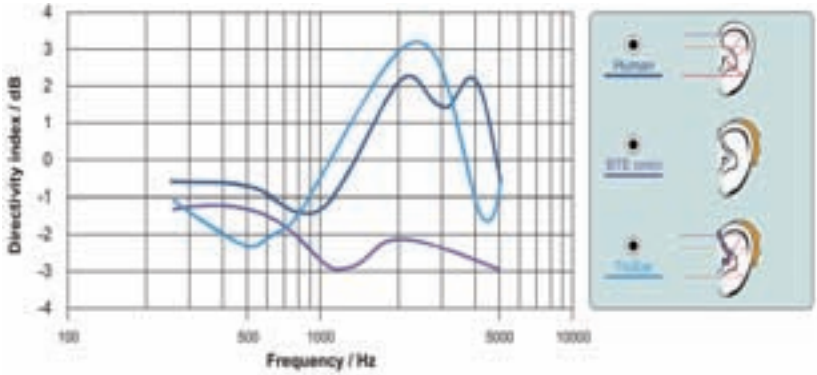
Front-back discrimination
monaural spectral cues
(> 2 kHz, outer ear re ections or TruEar)



Localization: different cues used for left-right and front-back discrimination.

Localization

Hearing instrument wearers sometimes have difficulties identifying the direction of sounds. For this reason, Motion offers two technologies for accurate localization and spatial recognition of sounds: TruEar and e2e wireless 2.0. **TruEar**™ simulates the acoustic cues provided by the human outer ear to enable front-back discrimination of sounds. And **e2e wireless**™ **2.0*** preserves interaural time differences and interaural level differences to ensure optimal left-right discrimination. Studies have shown that this technology can improve the left-right localization of sounds by up to 40%.[1]



With conventional BTE instruments, directionality at frequencies above 1.5 kHz is reduced in comparison to the unaided ear. However, with TruEar, a technology that mimics the characteristics of the human outer ear, the directivity of the human outer ear is restored to improve front-back localization.

* e2e wireless 2.0 utilizes a transmission frequency of 3.28 MHz, selected in accordance with the International Telecommunication Union (ITU) recommended frequency band 3.155 MHz to 3.400 MHz for wireless hearing instruments.

[1] Keidser, G., Rohrseitz, K., Dillon, H., Hamacher, V., Carter, L., Rass, U., Convery, E. (2006). "The effect of multi-channel wide dynamic range compression, noise reduction, and directional microphone on horizontal localization performance in hearing aid wearers." *International Journal of Audiology,* 45: 563–579.

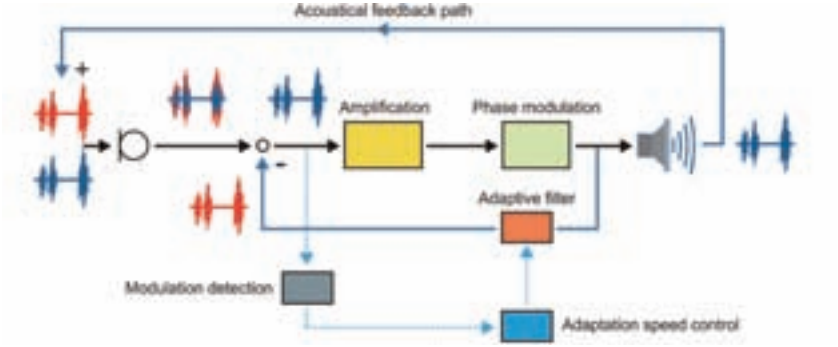
Learning.

Motion 700 is equipped with **SoundLearning**™, a sophisticated and advanced learning algorithm that takes DataLearning™ to a whole new level. In addition to the wearer's preferred volume, SoundLearning also learns the preferred setting of compression and frequency shaping, thus minimizing the need for manual adjustments. With **SoundBalance** (the treble control on the optional Tek Connect remote control) the wearers can directly teach Motion instruments their individual tone preferences. SoundLearning helps bridge the gap between initial fittings, which happen in a controlled environment, and the real world environment that wearers experience every day. SoundLearning and DataLearning help create a customized fitting for each Motion wearer.

The DataLogging feature, also a part of DataLearning and SoundLearning, collects useful information like program use, microphone modes, etc. So the instrument can be fine-tuned according to the wearer's requirements, based on the recorded data. DataLogging can also provide useful information for more effective patient counseling and can reduce the number of patient visits by enabling more precise fine-tuning.

Sound comfort.

One of the biggest challenges for hearing instrument wearers is following conversations in loud and/or noisy environments. That's why Motion is equipped with sophisticated digital signal processing techniques to enhance hearing comfort in these situations. All these features are controlled by an advanced classification system, which automatically adjusts the hearing instrument according to the wearer's acoustical environment.



Block diagram of FeedbackBlocker with Acoustic Fingerprint Technology (AFT). AFT applies an inaudible phase modulation to the hearing instrument's output signal to enable a reliable detection of feedback.

Motion's **FeedbackBlocker**™ is the next generation of adaptive phase cancellation systems to suppress feedback. Thanks to the new Siemens patented Acoustic Fingerprint Technology, FeedbackBlocker can detect and suppress the feedback portion within the microphone signal much faster and more reliably than ever before, eliminating embarrassing whistling before it's heard by the wearer or others nearby.

Equipped with the next-generation **Speech and Noise Management System,** Motion preserves audibility of soft sounds and supports auditory object recognition to help the auditory system to extract speech out of noise.[1]

The **Automatic Multichannel Adaptive Directional Microphone System** transitions automatically between omnidirectional, TruEar and directional modes to improve speech intelligibility in difficult listening environments. This system ensures the best possible directivity in every situation.

Unexpected noises like the sounds of breaking glass, rustling paper, and clanging dishes can be disturbing. But this isn't the case with **SoundSmoothing**™ – the industry's most effective transient noise reduction technology.[2] SoundSmoothing, thanks to its degree of attenuation and adaptive temporal behavior, automatically isolates and softens sudden noises while leaving speech signals intact.

Now wearers can experience the breeze at the beach or go for a walk on a blustery day without having to remove their hearing instruments. Motion's advanced **eWindscreen**™ feature constantly analyzes incoming signals for wind noise and automatically adjusts signal processing to reduce it.

Adaptive Melody Beeps ensure that Motion's acoustic signals for manual changes are audible even in very loud environments. The volume levels of these signals are adjusted automatically to ensure that they are clearly above the ambient noise level. This helps increase wearing time and hearing instrument acceptance.

[1] A.S. Bregmen, "Auditora Scene Analysis." Cambridge: MIT, Cambridge, 1990.
[2] Chalupper, J. and Branda, E., "Comparison of Transient Noise Reduction Systems," *Hearing Review*, January 2008, 20–25.

Convenient control.

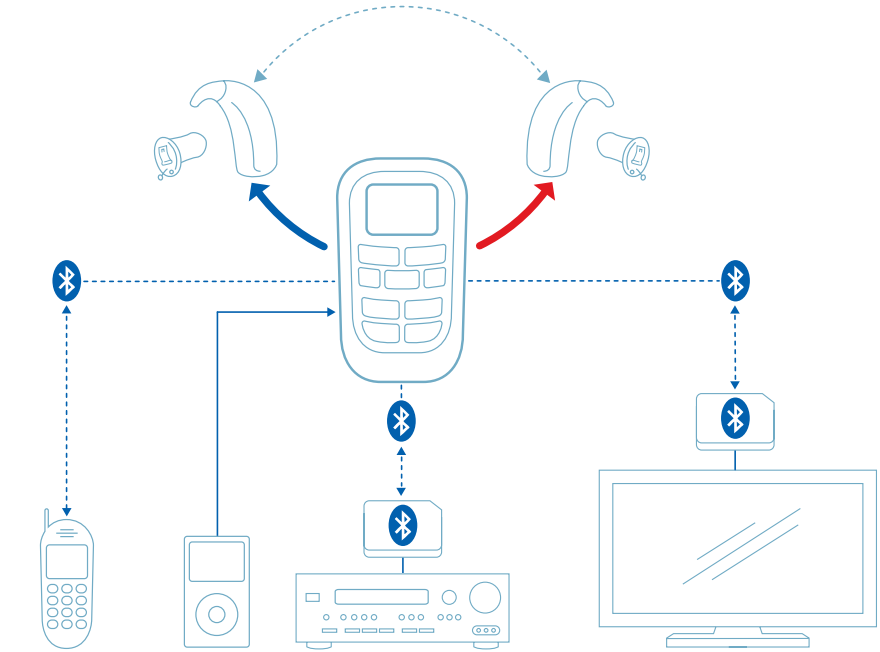
Motion is available with a choice of optional remote control devices, the ProPocket and the ultra-slim ePen. Both are small enough to fit into a purse or pocket and provide easy fingertip control over virtually all instrument functions.

The ProPocket™ remote control, with its large, conveniently arranged buttons, provides easy access to most instrument functions and is the ideal choice for those who prefer a more traditional remote control.

The new ePen™ remote control, thanks to its small form factor and slick design, lends itself to more discreet control. It's the perfect option for wearers who want to keep things subtle.

All the right connections. Now also available for 300 models.

Wearers who enjoy watching TV or listening to music will find Motion just right. Motion 700, 500 and 300 models, including CIC configurations, are fully compatible with Tek™, our optional wireless enhancement system. Tek lets wearers wirelessly connect to their favorite audio devices through a dedicated remote – Tek Connect. They can stream audio from MP3 players, televisions, or other audio sources directly to their Motion instruments. With Tek Connect, they can even connect wirelessly to their mobile phones using Bluetooth® technology.



Tek transforms your Motion hearing instruments into a precision-paired, high-performance, stereo headset. With Tek, nothing gets between you and your favorite listening devices.

Wireless fitting*.

Motion is as easy to fit as it is to wear. With Connexx 6.2, the latest fitting software from Siemens, and ConnexxLink™, the optional wireless programming device, you can fit your patients quickly and precisely without setting up cumbersome connections or untangling cables. Connexx 6.2 gives you all the exibility you need in an intuitive and user-friendly interface. It includes new features such as ConnexxFit to provide even more convenience. ConnexxFit combines the benefits of scientifically proven fitting formulas like NAL-NL1 and DSL m[i/o] with device-specific knowledge to provide accurate and customized fitting for every wearer.

*available at the end of 2009

CONNEXX LINK™

Optional Wireless Programming Device

Display
Displays status information during programming.

On/Off button
To switch device on and off.

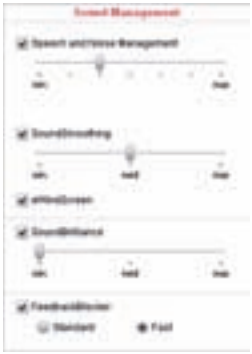
Charging Contacts
To charge ConnexxLink.

Motion 700 Connexx settings.

Frequency Shaping

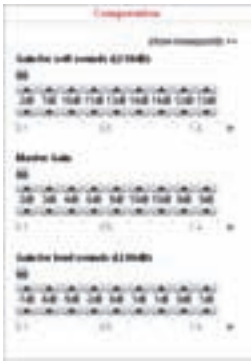
Adjust the frequency shape in up to 16 independent channels.

Choose between "Broadband" setting for maximum power output or set frequency-dependent maximum levels.



Sound Management

Choose from 7 speech and Noise Management settings, 3 SoundSmoothing settings, 3 SoundBrilliance settings and manage other parameters such as FeedbackBlocker and eWindscreen.



Compression

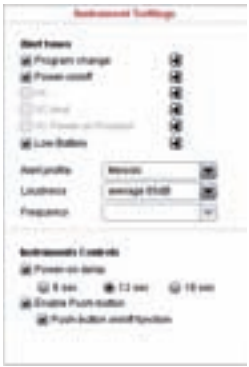
Adjust gain settings for soft sounds, speech and loud sounds for up to 16 channels.

Microphone/Bluetooth

Adjust localization and microphone settings.

Compression

Adjust the settings for compression kneepoints and ratios, and the temporal behavior of the compression system in up to 16 channels.



Instrument Settings

Customize the instrument with alert tone options. You can even select melody beeps instead of default tones to indicate instrument status.

Click on the eyeglass icon to select the number of handles (16, 8, 4, 2, or 1) you'd like to see.

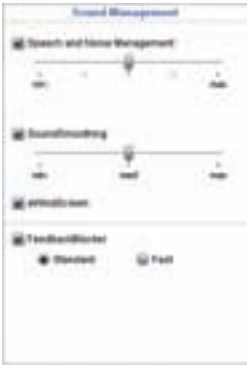
Click on "Show kneepoint" to switch to a different view.

Motion 500 Connexx settings.

Frequency Shaping

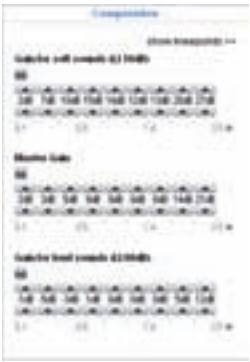
Adjust the frequency shape in up to 12 independent channels.

Choose between "Broadband" setting for maximum power output or set frequency-dependent maximum levels.



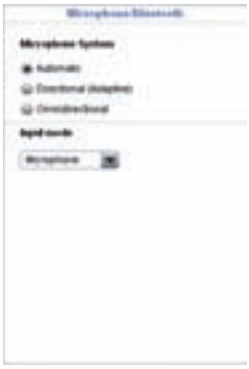
Sound Management

Choose from 5 speech and Noise Management settings, 3 SoundSmoothing settings, 3 SoundBrilliance settings and manage other parameters such as FeedbackBlocker and eWindscreen.



Compression

Adjust gain settings for soft sounds, speech and loud sounds for up to 12 channels.

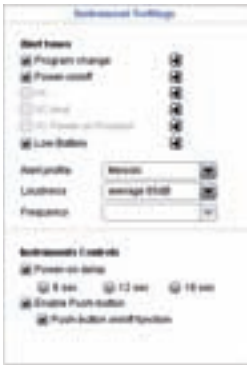


Microphone/Bluetooth

Adjust localization and microphone settings.

Compression

Adjust the settings for compression kneepoints and ratios, and the temporal behavior of the compression system in up to 12 channels.



Instrument Settings

Customize the instrument with alert tone options. You can even select melody beeps instead of default tones to indicate instrument status.

Click on the eyeglass icon to select the number of handles (12, 4, 2, or 1) you'd like to see.

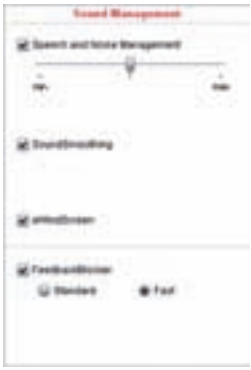
Click on "Show kneepoint" to switch to a different view.

Motion 300 Connexx settings.

Frequency Shaping

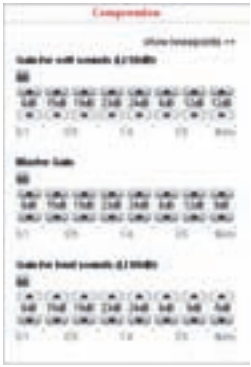
Adjust the frequency in up to 8 independent channels.

Choose setting for maximum power output.



Sound Management

Choose from 3 Speech and Noise Management settings, a SoundSmoothing setting, and manage other parameters such as FeedbackBlocker and eWindscreen.



Compression

Adjust gain settings for soft sounds, speech and loud sounds for up to 8 channels.

Microphone/Bluetooth

Adjust localization and microphone settings.

Compression

Adjust the settings for compression kneepoints and ratios, and the temporal behavior of the compression system in up to 8 channels.

Instrument Settings

Customize the instrument with the alert tone options. You can even select the melody beeps instead of default tones to indicate instrument status.

Click on the eyeglass icon to select the number of handles (8, 4, 2, or 1) you'd like to see.

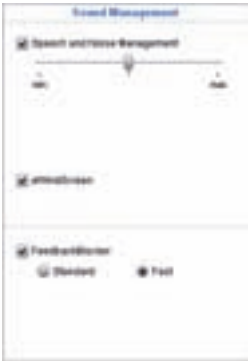
Click on "Show kneepoint" to switch to a different view.

Motion 100 Connexx settings.

Frequency Shaping

Adjust the frequency in up to 6 independent channels.

Choose setting for maximum power output.



Sound Management

Choose from 3 Speech and Noise Management settings and manage other parameters such as FeedbackBlocker and eWindscreen.

Compression

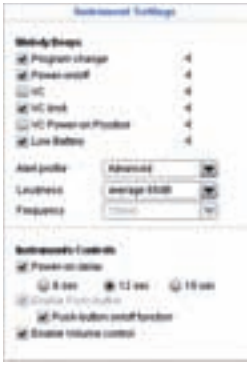
Adjust gain settings for soft sounds, speech and loud sounds for up to 6 channels.

Microphone

Adjust microphone settings.

Compression

Adjust the settings for compression kneepoints and ratios, and the temporal behavior of the compression system in up to 6 channels.



Instrument Settings

Customize the instrument with the alert tone options. You can even select the melody beeps instead of default tones to indicate instrument status.

Click on the eyeglass icon to select the number of handles (6, 4, 2, or 1) you'd like to see.

Click on "Show kneepoint" to switch to a different view.

An array of colors.

Motion offers wearers a range of color options to choose from.

	Standard Colors	700 S	500 S	300 S
	Beige	10420524	10422184	10422185
	Brown	10422673	10422944	10422958
	Granite	10422678	10422948	10422962
	Grey	10422679	10422954	10422963
	Black	10422671	10422941	10422956
	Silver	10422682	10422951	10422966
	Pearl White	10422680	10422949	10422964
	Hair Tone Colors			
	Golden Blonde	10422676	10422947	10422961
	Chestnut	10422674	10422945	10422959
	Sandy Brown	10422681	10422950	10422965
	New Colors			
	Dark Slate	10422675	10422946	10422960
	Snow White	10422683	10422952	10422967
	Pediatric Colors			
	Yellow	10422684	10422953	10422968
	Blue	10422672	10422942	10422957

100 S	700 M	500 M	300 M	100 M
10423724	10297245	10418441	10421177	10421322
10423727	10418430	10418442	10421194	10421681
10423731	10418431	10418443	10421201	10421693
10423732	10418432	10418444	10421203	10421696
10423725	10418433	10418445	10421182	10421636
10423735	10418434	10418446	10421209	10421705
10423733	10418435	10418447	10421205	10421699
10423730	10418436	10418448	10421199	10421690
10423728	10418437	10418449	10421195	10421684
10423734	10418438	10418450	10421207	10421702
10423729	10418439	10418451	10421197	10421687
10423736	10418440	10418452	10421212	10421708
10423737	10420206	10420208	10421214	10421711
10423726	10420207	10420209	10421191	10421678

An array of colors.

Motion offers wearers a range of color options to choose from.

	Standard Colors	700 M VC	500 M VC	300 M VC
	Beige	10297250	10418475	10421216
	Brown	10418464	10418476	10421228
	Granite	10418465	10418477	10421240
	Grey	10418466	10418478	10421242
	Black	10418467	10418479	10421224
	Silver	10418468	10418480	10421248
	Pearl White	10418469	10418481	10421244
	Hair Tone Colors			
	Golden Blonde	10418470	10418482	10421238
	Chestnut	10418471	10418483	10421234
	Sandy Brown	10418472	10418484	10421246
	New Colors			
	Dark Slate	10418473	10418485	10421236
	Snow White	10418474	10418486	10421251
	Pediatric Colors			
	Yellow	10420210	10420212	10421252
	Blue	10420211	10420213	10421226

100 M VC	700 P	500 P	300 P	100 P
10421377	10297255	10418521	10421254	10421851
10421790	10418510	10418522	10421264	10422026
10421874	10418511	10418523	10421272	10422052
10421877	10418512	10418524	10421274	10422057
10421714	10418513	10418525	10421260	10421855
10421893	10418514	10418526	10421280	10422071
10421881	10418515	10418527	10421276	10422060
10421870	10418516	10418528	10421270	10422047
10421862	10418517	10418529	10421266	10422032
10421884	10418518	10418530	10421278	10422065
10421867	10418519	10418531	10421268	10422038
10421896	10418520	10418532	10421282	10422075
10421899	10420214	10420216	10421284	10422078
10421783	10420215	10420217	10421262	10422023

Ordering information.

Motion offers all the parts and pieces needed for a truly customized solution.

LifeTubes (for S-instruments)

Type	Pieces	Part Number
1R	10	10296945
2R	10	10296947
3R	10	10296949
4R	10	10296951
5R	10	10296953
6R	10	10296955
1L	10	10296944
2L	10	10296946
3L	10	10296948
4L	10	10296950
5L	10	10296952
6L	10	10296954

S-LifeTubes (for M & M VC instruments)

Type	Pieces	Part Number
1R	10	10297011
2R	10	10297013
3R	10	10297015
4R	10	10297017
1L	10	10297010
2L	10	10297012
3L	10	10297014
4L	10	10297016
LifeTube Fitting Set		10296968
S-LifeTube Fitting Set		10296992
Measuring Gauge		10054711

Tips

Type	Size	Pieces	Part Number
Open	4 mm	10	10296987
Open	6 mm	10	10296988
Open	8 mm	10	10296989
Open	10 mm	10	10296990
Closed	8 mm	10	10296986
Double	8/10 mm	10	10296984
Double	10/12 mm	10	10296985

Services

	Description	Part Number
eARena	Audiotory training program	NTSC 10297234 PAL 10297233

Wax Protection

	Description	Part Number
C-Grid	Wheel with 16 C-Grid and tool	10423507

Hardware

	Description	Part Number
Motion S Charger	Charger including power supply country adapters, rechargeable batteries, drying capsules, User Guide	10422603
Motion M, M VC, P Charger	Charger including power supply country adapters, rechargeable batteries, drying capsule, User Guide	10423512
Rechargeable Battery (Size 13) 1 Pack	Battery Pack with 1 rechargeable battery	10423862
Batteries (Size 13) 6 Pack	Battery Blister with 6 batteries	10297392
ProPocket	Standard Remote Control	10417240
ProPocket Alternative	ProPocket with a different wireless address. Should **only** be used in case of interferences with another ProPocket	10417823
ePen	New Remote Control in pen format	10417242
ePen Alternative	ePen with a different wireless address. Should **only** be used in case of interferences with another ePen	10417243
Tek wireless enhancement	Including Tek Connect, Tek Transmitter 2 Power supplies, Cable set, Adapter set and Accessory box (including lanyard)	10417268
ConnexxLink Set	Including ConnexxLink, USB Bluetooth dongle, rechargeable battery for ConnexxLink and Lanyard for ConnexxLink	10417277

Programming Cables

	Description	Part Number
Motion S Programming Cable	Connecting cable (battery pill) between Hi-Pro and Motion S BTE	10422016
Hi-Pro Cable (Right)	Connecting cable between Hi-Pro and Motion BTE and ITE	2944986
FlexConnect™ 2	Kit A including Flexstrips, Flexplug and Hi-Pro cables	7059707
FlexConnect™ 2	Kit B including Flexstrips	7059731

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases and are subject to change without prior notice.
The required features should therefore be specified in each individual case at the time of conclusion of the respective contract.

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